APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2007-1023, 2007-1024

FINISAR CORPORATION,

Plaintiff-Cross Appellant,

v.

The DIRECTV Group, Inc., DIRECTV Holdings LLC, DIRECTV Enterprises LLC, DIRECTV Operations LLC, Hughes Network Systems, Inc., and DIRECTV, Inc.,

Defendants-Appellants.

Larry R. Laycock, Workman Nydegger, of Salt Lake City, UT, argued for plaintiff-cross appellant. With him on the brief were Charles L. Roberts, C.J. Veverka, and David R. Todd. Of counsel on the brief was Stanley J. Panikowski, DLA Piper U.S. LLP, of San Diego, CA.

Gregory A. Castanias, Jones Day, of Washington, DC, argued for defendants-appellants. With him on the brief were Jennifer L. Swize, of Washington, DC, and Victor G. Savikas, Louis L. Touton, and Kevin G. McBride, of Los Angeles, CA.

Appealed From: United States District Court for the Eastern District of Texas

Judge Ron Clark

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The DIRECTV Group, Inc., DIRECTV Holdings LLC, DIRECTV Enterprises LLC, DIRECTV Operations LLC, Hughes Network Systems, Inc., and DIRECTV, Inc.,

Defendants-Appellants.

Appeals from the United States District Court for the Eastern District of Texas in Case No. 1:05-CV-00264, Judge Ron Clark

DECIDED: April 18, 2008

Before MICHEL, Chief Judge, RADER and MOORE, Circuit Judges.

RADER, Circuit Judge.

By a jury verdict, the United States District Court for the Eastern District of Texas found that The DirecTV Group, Inc., DirecTV Holdings, LLC, DirecTV Enterprises, LLC, DirecTV Operations, LLC, and DirecTV, Inc. (collectively DirecTV) had infringed U.S. Patent No. 5,404,505 (the '505 patent), assigned to Finisar Corporation (Finisar). Finding

DirecTV's infringement to have been willful, the jury awarded $78.9 million in reasonable royalty damages. The district court sustained the jury's verdict, except with respect to induced and contributory infringement, denied Finisar's request for injunctive relief, imposed a compulsory license, and awarded Finisar $25 million in enhanced damages. *Finisar Corp. v. DirecTV Group, Inc.*, No. 1:05-CV-00264, 2006 WL 2037617 (E.D.Tex. July 7, 2006) (*Final Judgment*). The district court also denied DirecTV's post-judgment motions for judgment as a matter of law (JMOL) or a new trial. *Finisar Corp. v. DirecTV Group, Inc.*, Case No. 1:05-CV-00264, 2006 WL 2709206 (E.D.Tex. Sept. 1, 2006) (*JMOL Order*).

Because the district court incorrectly construed a vital term featured prominently in each asserted claim, this court vacates the verdict of infringement. Furthermore, the district court erred in ruling that the prior art did not anticipate claim 16. This error also infects the scope of the prior art for assessing the validity of the rest of the claims. Therefore, this court remands for a new trial on both infringement and validity of claims 17, 22, 24, 26, 39, and 44.

I

The '505 patent, issued on April 4, 1995 from an application filed on November 1, 1991, claims systems and methods for scheduling transmission of database tiers upon specific demand or at specific times and rates of repetition. The '505 patent describes an information broadcasting system that gives subscribers access to video and audio programs

through high-speed satellite or cable links. *See* '505 patent, Abstract; col.1 l.68-col.2 l.2. Under the patented system, subscribers do not need to request the most popular and trendy movies, for example, or other programs. Instead the system anticipates likely (more popular) requests and broadcasts those programs to users on an announced schedule at regular intervals. Thus, most of the interaction between the user and the information server is unidirectional, meaning that the server sends most of the data to the subscriber without even receiving a request.

For scheduled transmissions, i.e. those not responsive to a specific user request, the system sends more popular data more frequently. To make this work, the system divides the information database into different tiers based on likely popularity. Then the system broadcasts each tier of data at a particular repetition rate. *See id.*, col.14 ll.2-18. Thus, the system arranges all information in the database in a hierarchical structure. *See id.*, col.6 ll.28-40. In this regard, the '505 specification analogizes the claimed invention to accessing information in a large library:

> It is important to note that while a user has access to perhaps a terabtye, or even 100 terabytes or more, of data, the total amount of data that systems in accordance with the present invention system can transmit in any one day is much more limited, as will be described below. This is not unlike visiting the main library of a major university, such as Yale or Harvard University, having stacks containing several million volumes of

> books. Having "access" to all those books every single day does not means [sic] that a user can receive them all in one day, nor does it mean that all the users can receive all the books in a single day. Nevertheless, each particular book (file or program) is available on relatively short notice, and having access to such a large collection of books (data) is still very useful.

Id., col.2 ll.9-23. The '505 specification also compares the claimed invention to other information distribution systems, like books and CDs, estimating that the system saves vast amounts in distribution costs by avoiding shipment of each individual copy of the desired data. *See id.*, col.2 ll.24-43.

DirecTV began offering direct-to-home satellite broadcasting in the United States in 1994. A DirecTV subscriber accesses the broadcasting system through a small antenna (generally a small satellite dish affixed to the exterior of a subscriber's home) and its associated electronics, along with a set-top box, which attaches to the subscriber's television set. DirecTV generally broadcasts four types of information: turnaround programming, playback programming, conditional access information, and program guide information.

Turnaround programming constitutes the bulk of DirecTV's broadcasts. This category of programming re-broadcasts or "turns around" content from other television channels like CNN, Comedy Central, ESPN, and Animal Planet, to name a few. The owners of these channels, rather than DirecTV, schedule the airing of their programs. As discussed

below with respect to infringement, the parties dispute the degree to which DirecTV controls, or "programs," the turnaround programming. A different company, Tribune Media Services, collects scheduling information from the various channels. DirecTV adopts the Tribune schedule.

As noted above, DirecTV also offers "playback" programming, which comprises pay-per-view movies and the like. DirecTV itself schedules the broadcast of playback programming. DirecTV's broadcasts also include "conditional access" information, which allows an authorized subscriber to pay for and receive selected programs. DirecTV controls access to this information by broadcasting it in an encrypted format. Finally, DirecTV's broadcasts also include an electronic program guide, which provides the user with information about current and upcoming programs on the various channels.

Finisar sued DirecTV for infringement of the '505 patent, initially asserting that DirecTV's direct broadcast satellite system infringed fifteen of the '505 patent's forty-eight total claims. After a *Markman* hearing and a claim construction order, *Finisar Corp. v. DirecTV Group, Inc.*, 416 F.Supp.2d 512 (E.D.Tex.2006) (*Markman Order*), the district court concluded on summary judgment that seven of the asserted claims (claims 1, 2, 7, 9, 10, 11, and 37, all means-plus-function claims) were invalid for indefiniteness. *Finisar Corp. v. DirecTV Group, Inc.*, Case No. 1:05-CV-00264, 2006 WL 1207828 (E.D.Tex. May 2, 2006) (*Invalidity Order*). Before trial, Finisar dropped its allegation of infringement of one claim (claim 25).

A jury heard evidence on infringement of the remaining seven asserted claims (claims 16, 17, 22, 24, 26, 39, and 44). The jury concluded that DirecTV infringed all seven claims (directly and by inducement and contribution). Finding DirecTV's infringement to have been willful, the jury awarded $78.9 million in reasonable royalty damages. The district court sustained the jury's verdict, except with respect to induced and contributory infringement, denied Finisar's request for injunctive relief, imposed a compulsory license, and awarded $25 million in enhanced damages. *Final Judgment.* The district court also denied DirecTV's post-judgment motions for JMOL or a new trial. *JMOL Order.*

II

Between DirecTV's appeal and Finisar's cross-appeal, this court confronts a variety of issues. DirecTV's appeal challenges the district court's construction of two claim terms ("information database" and "downloading into a memory storage device") and the jury's findings of literal infringement, validity (novelty and non-obviousness), and willfulness. Finisar cross-appeals the district court's denial of Finisar's motion for a permanent injunction, imposition of a compulsory license at a rate of $1.60 per set-top box, and grant of summary judgment of invalidity on claims 1, 2, 7, 9, 10, 11, and 37 as indefinite.

The district court denied DirecTV's post-trial motions for JMOL or a new trial on non-

infringement, invalidity, and non-willfulness. On the motions for JMOL or a new trial, this court applies the law of the regional circuit, in this case the United States Court of Appeals for the Fifth Circuit. *See Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1248 (Fed. Cir. 2005) (JMOL); *Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GmBH*, 408 F.3d 1374, 1380 (Fed. Cir. 2005) (new trial). Our sister circuit reviews a JMOL motion without deference. *Cambridge Toxicology Group, Inc. v. Exnicios*, 495 F.3d 169, 179 (5th Cir. 2007). JMOL "is appropriate only when a 'reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.'" *Id.* (quoting Fed.R.Civ.P. 50(a)(1)). To this end, "the Fifth Circuit describes appellate review of a JMOL denial as a determination whether 'the facts and inferences point so strongly and overwhelmingly in favor of one party that the court concludes that reasonable jurors could not arrive at a contrary verdict.'" *Harris*, 417 F.3d at 1248 (quoting *Bellows v. Amoco Oil Co.*, 118 F.3d 268, 273 (5th Cir. 1997)). In contrast, a district court's denial of a motion for a new trial is reviewed for abuse of discretion. *Industrias Magromer Cueros y Pieles S.A. v. La. Bayou Furs Inc.*, 293 F.3d 912, 924 (5th Cir. 2002).

1. Claim Construction

This court reviews claim construction without deference. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1451 (Fed. Cir. 1998) (en banc). Generally this court gives claim terms their ordinary and customary meanings, according to the customary understanding of an artisan of ordinary skill at the time of the

invention. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). And "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313. When construing claims, the claims and the rest of the patent, along with the patent's prosecution history (together, the intrinsic evidence of the meaning of the claims) are the primary resources; while helpful, extrinsic sources like dictionaries and expert testimony cannot overcome more persuasive intrinsic evidence. *See id.* at 1318.

In this instance, the United States District Court for the Eastern District of Texas was not the only trial court to have construed the claims of the '505 patent, including the two terms disputed on appeal. The United States District Court for the Northern District of California issued a *Markman* order in a declaratory judgment action filed by Comcast Cable Communications Corp. (Comcast) against Finisar for patent non-infringement. *Comcast Cable Commc'ns Corp. v. Finisar Corp.*, No. C 06-04206, 2007 WL 1052821, 2007 U.S. Dist. LEXIS 28994 (N.D.Cal. Apr. 6, 2007) (*Comcast Markman Order*). Given "the importance of uniformity in the treatment of a given patent," *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), this court would be remiss to overlook another district court's construction of the same claim terms in the same patent as part of this separate appeal. In the interest of uniformity and correctness, this court consults the claim analysis of

different district courts on the identical terms in the context of the same patent. Here, the Northern District of California's efforts in the *Comcast* case are particularly helpful because that court repeatedly referred back to the Eastern District of Texas's constructions-the subjects of this appeal. *See, e.g., Comcast Markman Order,* 2007 WL 1052821, at *2, 3, 4, 7, 10, 11, 13, 2007 U.S. Dist. LEXIS 28994, at *6, 7, 10, 18, 27, 30, 36.

DirecTV appeals the district court's construction of two terms, "information database" and "downloading into a memory storage device." Independent claim 16 shows these terms in context:

> 16. An information transmission method comprising the steps of:
>
> storing an *information database* on one or more memory devices;
>
> generating and storing on said memory devices a hierarchically arranged set of indices for referencing data in said *information database,* including distinct indices for referencing distinct portions thereof, and embedding said indices in said *information database*;
>
> scheduling transmission of selected portions of said *information database,* including assigning each selected portion of said *information database* one or more scheduled transmission times;
>
> transmitting a stream of data packets containing said selected portions of said *information database*

in accordance with said scheduled transmission times;

said scheduling step including dividing said selected portions of said *information database* into a prioritized set of tiers, wherein all the selected portions of said *information database* in each tier are transmitted at a corresponding repetition rate, wherein the repetition rate for higher priority tiers is higher than the repetition rate for lower priority tiers;

receiving said transmitted stream of data packets at subscriber stations;

at each subscriber stations, storing filter data corresponding to a subset of said indices, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets; and

at each subscriber station, *downloading into a memory storage device* those of said received data packets which match said specified set of requested data packets.

'505 patent, col.21 ll.34-68 (emphases added).

"information database"

The Eastern District of Texas construed "information database" to mean "a collection of computerized information which can be accessed." *Markman Order,* 416 F.Supp.2d at 517. The Northern District of California construed this term somewhat

differently, as "a dynamic, structured collection of digitized data capable of being held in computer storage." *Comcast Markman Order,* 2007 WL 1052821, at *6, 2007 U.S. Dist. LEXIS 28994, at *16-17.

The construction reached by the district court in this case is unjustifiably broad because the information database as claimed requires searchability and retrievability beyond mere accessibility. In isolation, the term "information database" suggests a very broad coverage. In context, however, this claim term repeatedly appears within a framework that requires referencing, embedding, assigning, and transmitting portions of the database. These database functions and capabilities, in turn, presuppose searchability and retrievability.

Beyond the context of the claim language, the '505 patent specification supports this narrower reading of the term. As discussed, the specification analogizes the invention to a large library. This analogy suggests that a user can quickly obtain specific data from a large database. Indeed, the '505 specification confirms that the user has "reasonably quick access to all the contents of the large database," but the amount of data available to a given library patron/user at any given time "is much more limited," allowing the user to borrow a "particular book (file or program)" on "relatively short notice." '505 patent, col.3 ll.3-5; col.2 ll.9-23. Once again, the specification underscores the searchability and retrievability of the database. This court emphasizes that its construction does not necessarily entail the full-text searching available

with electronic legal research systems (e.g. LexisNexis or Westlaw). The district court expressed some concerns on this point. *See Markman Order*, 416 F.Supp.2d at 516-17 ("For example, common legal research systems allow very narrow searches, such as by case name, by judge name, and even by a particular word. In contrast, some of the data in the '505 system can only be referenced in broader terms, such as a search for a movie by title, but not necessarily by words used in a movie or group of movies."). And in the *Comcast* case, the Northern District of California did not require a fully-searchable database of this sort. *Comcast Markman Order*, 2007 WL 1052821, at *6, 2007 U.S. Dist. LEXIS 28994, at *16-17. Rather, the Northern District observed that claim 16 does not indicate any searchability "beyond the navigability implied by the index itself," and that "the requests are based on the system of indices." *Id.*

The hierarchical indices recited later in the claims for "referencing data" in the information database actually confirm, rather than refute, that the claimed method must include search and retrieval features. Such hierarchical indices facilitate the search and retrieval of data from the information database. Thus the claims envision a more specific "information database" than provided by the district court's construction. To return to the book analogy, an index at the back of a book correlates specific terms or concepts to the pages where they appear in the main text of the book by page number. Such an index would have little or no value if the pages of the main text were not numbered or arranged sequentially.

The district court rejected the analogy of an index found at the back of a book referring to sequentially ordered pages because "an index can be a single data item." *Markman Order,* 416 F.Supp.2d at 517. Specifically, the district court cited the following passage from the '505 specification: "indices (each of which contains a packet ID plus additional information) ... form a single hierarchical structure that encompasses the entire information database." '505 patent, col. 6 ll.31-36. Even if this passage may suggest that the '505 patent allows for the possibility that one data item can refer to the entire information database, the next sentence specifically requires a plurality of indices: "[m]ore specifically, software ... generates a hierarchical set of indices referencing all the data in the information database." *Id.,* col.6 ll.36-39. Thus according to the '505 patent, the index is composed of a hierarchical set of indices that, taken together, reference all the data in the information database. Continuing with the library analogy, the '505 patent's hierarchical set of indices is akin to a card catalog system, and the "information database" is like a library's collection of books. To make the card catalog system relevant, the library must shelve the books according to some order, like the Dewey Decimal or Library of Congress systems. This court cannot envision carefully organizing each book's card catalog records, but then randomly heaping the books themselves into an inaccessible pile in the center of the library rather than shelving them by call number. Likewise, the information database of the asserted claims must include search and retrieval features at least commensurate with "the navigability implied by the

index itself," as the Northern District of California put it. This court therefore construes "information database" as used in the '505 patent as "a collection of computerized information which can be accessed and searched, and from which selected information can be retrieved, and where the search and retrieval capabilities are at least as specific as those of the hierarchically arranged set of indices."

"downloading into a memory storage device"

The district court construed the "downloading" step in claim 16 ("downloading into a memory storage device those of said received data packets which match said specified set of requested data packets") to mean "the data filter transfers into a memory storage device the data packets specified in the filter data." *Markman Order*, 416 F.Supp.2d at 522. In contrast, the Northern District of California construed "downloading into a memory storage device" as "transferring the desired data into a device capable of saving it for later access." *Comcast Markman Order*, 2007 WL 1052821, at *12, 2007 U.S. Dist. LEXIS 28994, at *35.

This court perceives that "downloading into a memory storage device" requires more than the mere *transfer* of data, but *retention* of data as well. Thus the claims require a downloading that preserves the data for later use or retrieval of the transferred data. Once again, the language of the claims, in context, specifies that the data downloads "into a memory storage device." Thus, the claim itself associates "downloading" with memory, retention, and preservation. Indeed the Northern District of

California construed the term to require capacity for later access.

The '505 patent specification supports this reading. In its description, the '505 specification refers to the invention as an alternative to CDs or paper publications. '505 patent, col.2 ll.24-43. Both of these alternative forms entail preservation and retention of the downloaded or published data. Similarly, the library analogy supports this court's reading. When patrons borrow a book, they have access to the entire work until they return it to the library; they could flip back and forth or reread portions at will, rather than only reading straight through the book at a predetermined time.

In this instance, the doctrine of claim differentiation also bolsters this court's interpretation. Indeed the Northern District of California relied in part on the doctrine of claim differentiation to arrive at its construction of "downloading into a memory storage device." *Comcast Markman Order*, 2007 WL 1052821, at *10-12, 2007 U.S. Dist. LEXIS 28994, at *30-35. Specifically, the *Comcast* court compared claim 16, recited above, with claim 26, which further modifies the "receiving" and "downloading" steps of claim 16:

> 26. The information transmission method of claim 16, said receiving and downloading steps including:
>
> at each subscriber stations, *temporarily storing received data packets in a buffer*, storing a filter list comprising said filter data referencing said specified set of requested data packets, *comparing*

said data packets temporarily stored in said buffer with said filter data and then forwarding those data packets in said buffer which match said filter data to a predefined destination;

whereby each subscriber station receives all transmitted data packets but forwards only requested data packets to said predefined destination.

'505 patent, col.23 ll.15-27 (emphases added). Reasoning that the "predefined destination" recited at the end of claim 26 must be a "memory storage device" by comparing claim 26 to claim 16, the Northern District of California noted that "the use of the buffer in claim 26 was *not* as a memory storage device. Rather, it was a refinement on the filtering step." *Comcast Markman Order*, 2007 WL 1052821, at *12, 2007 U.S. Dist. LEXIS 28994, at *33 (emphasis in original). Turning to the specification's consistently separate references to the filtering step and the downloading step, the Northern District of California observed that "[s]torage need not be permanent, but being able to view content at a time after it has been downloaded is a key feature of this invention," *id.* at *12, 2007 U.S. Dist. LEXIS 28994, at *34, and that "the buffer used in the filter step will not do double duty as the storage memory device for the downloading step," *id.* at *12, 2007 U.S. Dist. LEXIS 28994, at *34-35. For all of the reasons outlined above, this court agrees. As such, this court adopts the Northern District of California's construction of "downloading into a memory storage device" as "transferring the desired data into a device capable of saving it for later access."

This court observes that fleeting or transient retention does not qualify as the kind of downloading defined by these claims. The '505 specification at one point describes the "download[ing]" of data corresponding to anticipated information requests into a "smart cache," which is used as a temporary buffer, and which is overwritten upon receipt of new information in a later request. '505 patent, col.9 ll.4-13. This discussion of the smart cache in column 9 is thus further evidence that "downloading" requires capacity for non-transient data retention, because only retained data could be used to service the user's "future information requests." *Id.*, col.9 ll.1-3. Also, the specification describes that selected data from the smart cache "can be moved to other areas of the user's hard disk," while unused data from the smart cache are overwritten with new data. '505 patent, col.16 ll.31-44. Furthermore, column 11 of the '505 patent distinguishes fairly clearly between buffering and downloading: the data packets received from the satellite are stored in a "ring buffer," which in turn may vary in size, depending on "the maximum possible delay before a selected packet is downloaded onto the subscriber's host computer." *Id.*, col.11 ll.34-46. Thus, "downloading" as used in the patent requires something more than just transient retention of data.

2. Literal Infringement

Literal infringement is a question of fact, reviewed for substantial evidence when tried to a jury. *ACCO Brands, Inc. v. ABA Locks Mfrs. Co.*, 501 F.3d 1307, 1311 (Fed. Cir. 2007). Where an infringement verdict

relies on incorrect construction of the disputed claim terms, this court may grant JMOL or order a new trial to correct the error, depending on the degree of difference between the incorrect construction and the correct construction. If no reasonable jury could have found infringement under the proper claim construction, this court may reverse a district court's denial of JMOL without remand. *See Harris*, 417 F.3d at 1255-57. Here, DirecTV argues that it does not infringe under the proper construction of "information database" and "downloading into a memory storage device." Also, without disputing the district court's construction of any particular additional term, DirecTV asserts that its system does not satisfy the "scheduling" step recited in the asserted claims.

"information database"

Because the district court construed "information database" too broadly, this court must evaluate the effects of this erroneous construction on the jury's infringement verdict, through which the jury necessarily concluded that DirecTV's system met the "information database" limitation. In this instance, this court's reversal of the district court's construction has no discernible effect on the jury's verdict, because the difference between the correct construction of "information database" and the one relied upon by the jury depends on the specificity of the hierarchically arranged set of indices. Because DirecTV does not appeal the district court's construction of "set of indices for referencing data in said information database" or "hierarchically arranged set of indices," nor does DirecTV dispute

the jury's implicit finding that that DirecTV's system met these limitations as part of arriving at its infringement verdict, this court considers the district court's erroneous construction of "information database" as harmless.

"downloading into a memory storage device"

This court's construction of "downloading into a memory storage device" as "transferring the desired data into a device capable of saving it for later access" is markedly different than the construction used by the jury in its infringement inquiry. The instruction followed by the jury did not require this capacity for retention, so the jury's verdict of infringement cannot necessarily be said to have been predicated on a finding that DirecTV's system included it. Moreover, the meaning of "downloading" necessarily informs the treatment of the data in the memory storage device. As a result, the jury's infringement verdict must be vacated.

To be more specific, DirecTV's broadcasts consist of four types of data: turnaround programming, playback programming, conditional access information, and the electronic program guide, as described above. The record shows that some DirecTV subscribers use set-top boxes that also function as digital video recorders (DVRs) (DVR set-top boxes), while others use standard set-top boxes. DVRs allow users to select and record particular programs for later use, as well as to pause and play back "live" video. The four broadcast data types and two set-top box types thus represent two different ways to subdivide DirecTV's service. The record and

briefs on appeal are insufficient to accurately sort out these overlapping subsets with respect to the "downloading" limitation, especially in light of the new construction, thus necessitating remand.

"one or more scheduled transmission times"

The claims also require the infringer to assign "one or more scheduled transmission times." This limitation comes from the "scheduling" step, the third step in claim 16. This step recites:

> scheduling transmission of selected portions of said information database, including assigning each selected portion of said information database one or more scheduled transmission times;

'505 patent, col.21 ll.44-47. DirecTV alleges that the district court interpreted "selected portions of [the] information database" as "each part of the information database selected for transmission." To the contrary, the district court construed "dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" to mean "placing each part of the information database selected for transmission into one or more groups of information, and transmitting each group at a chosen repetition rate." *Markman Order,* 416 F.Supp.2d at 520.

Relying on its interpretation of the district court's construction of "each" in the "dividing" step to inform the use of "each" in the "scheduling" step, or

alternately on the plain meaning of "each," DirecTV argues that Finisar had to prove that the "selected portions" of DirecTV's database it identified are "each" assigned a scheduled transmission time. The record shows that only 3% of DirecTV's programming (i.e. its data selected for transmission) comprises playback programming that fits within this meaning of "scheduled." The other 97% is turnaround programming, received from third-party content providers like CNN, ESPN, and others. DirecTV argues, inter alia, that it does not infringe because these third parties schedule the programming, independently of DirecTV.

Nonetheless, even under DirecTV's interpretation of the district court's construction, claim 16 does not require scheduling for *all* transmitted information. Rather the claim specifies scheduling for "each part of the information database selected for transmission." Thus the claim leaves room for transmission of other data in other, i.e. non-scheduled, ways because claim 16 is written using an open-ended format, using the transitional term "comprising." Claim 16 simply does not require scheduling for all transmissions from the information database, but only for some, i.e. "selected," portions. Because both parties agree that DirecTV assigns scheduled transmission times to its playback programming, comprising about 3% of its content, the jury had substantial evidence to conclude that DirecTV's accused system meets the "scheduling" step of the asserted claims.

3. Anticipation

Anticipation is a question of fact, reviewed for substantial evidence when tried to a jury. *z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1347 (Fed. Cir. 2007). If the claimed invention was "described in a printed publication" either before the date of invention, 35 U.S.C. § 102(a), or more than one year before the U.S. patent application was filed, 35 U.S.C. § 102(b), then that prior art anticipates the patent. Although § 102 refers to "the invention" generally, the anticipation inquiry proceeds on a claim-by-claim basis. *See Hakim v. Cannon Avent Group, PLC*, 479 F.3d 1313, 1319 (Fed. Cir. 2007). To anticipate a claim, a single prior art reference must expressly or inherently disclose each claim limitation. *Celeritas Techs., Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). But disclosure of each element is not quite enough-this court has long held that "[a]nticipation requires the presence in a single prior art disclosure of all elements of a claimed invention *arranged as in the claim*." *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (citing *Soundscriber Corp. v. United States*, 175 Ct.Cl. 644, 360 F.2d 954, 960 (1966) (emphasis added)).

In this case, the prior art alleged to anticipate is *The Architecture of Videotex Systems (Videotex Architecture)*, a 1983 textbook by Jan Gecsei. This reference describes videotex as a "mass-communication medium based on a blend of television, communications, and computer technologies." *Id.* at 3. The reference further notes that videotex "is not a brand-new procedure based on

some glamorous breakthrough; its originality is rather in its combination of existing technologies." *Id.* at 6.

With respect to claim 16, Finisar's expert, Doug Eaton, testified at trial that *Videotex Architecture* did not teach the "scheduling," "transmitting," and "dividing" steps:

> scheduling transmission of selected portions of said information database, including assigning each selected portion of said information database one or more scheduled transmission times;
>
> transmitting a stream of data packets containing said selected portions of said information database in accordance with said scheduled transmission times;
>
> said scheduling step including dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate, wherein the repetition rate for higher priority tiers is higher than the repetition rate for lower priority tiers;

'505 patent, col.21 ll.44-57. The reference thus discloses the division of information into tiers, the transmission of information, and the scheduling of transmissions. The question on appeal, however, focuses on the interrelationships between these elements as claimed in claim 16. For instance, the claim requires "dividing said selected portions of said

information database into a prioritized set of tiers." Therefore, to anticipate, a reference must disclose division of the portions of the database into tiers and further assignment of scheduled transmission times to the selected portions *within* the tiers.

To check for anticipation, this court examines the *Videotex Architecture* reference in some detail. In a section entitled "Transmission Sequence" in Chapter 10, "Databases for Videotex," the reference explains:

> On-line and off-line reception can be mixed by controlling the repetition rate of transmitted pages. *A few hundred pages of general interest can be repeated in a short cycle, whereas less important or less frequently updated pages are inserted in hourly or even daily intervals into specific slots in the cycle, or according to a predetermined schedule.* This ... permits for the dissemination of very large amounts of data.

Videotex Architecture at 175 (emphasis added). This passage discloses two tiers with two corresponding repetition rates. Still the very specific requirements of anticipation demand a further inquiry. Particularly, this court must consider whether the jury could have reasonably concluded that this passage does not disclose assignment of scheduled transmission times to the pages in both tiers. Because "or according to a predetermined schedule" appears at the end of the sentence and after a comma, this court must ask whether the jury could have reasonably construed this phrase as an alternative only for the "less important or less frequently updated pages," rather than both tiers of

pages mentioned in the preceding clauses. *Id.* at 39-40.

Although this reading of the reference seems a stretch even at first blush, this court discussed an analogous situation in *Anhydrides & Chemicals, Inc. v. United States,* 130 F.3d 1481, 1483 (Fed. Cir. 1997). In that case, this court used general principles of English grammar for the proposition that "[r]eferential and qualifying words and phrases, *where no contrary intention appears,* refer solely to the last antecedent, which consists of 'the last word, phrase, or clause that can be made an antecedent without impairing the meaning of the sentence' " for purposes of statutory construction. *Id.* (quoting 2A C. Dallas Sands, *Sutherland Statutory Construction* § 47.33 (4th ed. 1984)) (emphasis added). Thus, this court has addressed this grammatical guideline referred to as the doctrine of the last antecedent. In *Anhydrides,* a case without a contrary intention in the passage at issue, this court construed the qualifying phrase to apply only to the immediately preceding antecedent. 130 F.3d at 1483.

In contrast, "[w]hen a modifier is set off from a series of antecedents by a comma, the modifier should be read to apply to each of those antecedents." *Kahn Lucas Lancaster, Inc. v. Lark Int'l Ltd.,* 186 F.3d 210, 215 (2d Cir. 1999), *abrogated on other grounds as recognized by Sarhank Group v. Oracle Corp.,* 404 F.3d 657 (2d Cir. 2005). But while "the meaning of a statute will typically heed the commands of its punctuation," *U.S. Nat'l Bank v. Indep. Ins. Agents of Am., Inc.,* 508 U.S. 439, 454, 113 S.Ct. 2173, 124 L.Ed.2d 402 (1993), the doctrine of the last

antecedent and its corollary, the rule of punctuation, *see Bingham, Ltd. v. United States*, 724 F.2d 921, 926 n. 3 (11th Cir. 1984), are more guidelines than absolute rules. *See Kahn*, 186 F.3d at 215 ("and in applying them we are mindful of the Supreme Court's admonition that 'a purported plain-meaning analysis based only on punctuation is necessarily incomplete and runs the risk of distorting a statute's true meaning'") (quoting *U.S. Nat'l Bank*, 508 U.S. at 454, 113 S.Ct. 2173 (1993)).

Of course, *Anhydrides* and the other cases discussed above apply the rules of English grammar to statutory construction, whereas the present dispute involves the meaning of a prior art reference. These exercises are not entirely coterminous because the meaning of a prior art reference requires analysis of the understanding of an artisan of ordinary skill. *See Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991) (to anticipate, "[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention"); *cf. In re Omeprazole Patent Litig.*, 483 F.3d 1364, 1379 (Fed. Cir. 2007) (a prior art reference must enable one of ordinary skill in the art to make the invention without undue experimentation to anticipate). In contrast, statutory construction does not include a skilled artisan component but considers instead the "object and policy" of the law. *Nat'l Bank*, 508 U.S. at 455, 113 S.Ct. 2173 (internal citations omitted). Still words, in context, receive their meaning according to their placement in grammatical structure.

Therefore, to avoid slipping into a realm of ambiguity that could render jury verdicts wholly unreviewable, this court imputes an understanding of English grammar and usage to the jury. Moreover this court consults the overall context of the passage. The passage discusses and explains the entire hierarchy of data, not isolated portions of the database. Thus, one of skill would interpret the passage broadly to present many varied options for each of the tiers under consideration. Therefore, this court perceives that the comma before "or according to a predetermined schedule" (*Videotex Architecture* at 175) refers to the general interest pages *and* the less frequently updated pages. Thus, the passage means that either tier of data repeats at particular intervals *or* according to a predetermined schedule.

This court finds more support than just the passage on page 175 to support anticipation of the dividing limitation. The very next page provides additional and unequivocal support. Figure 10.5 on page 176 discloses division into multiple tiers and scheduling of those tiers:

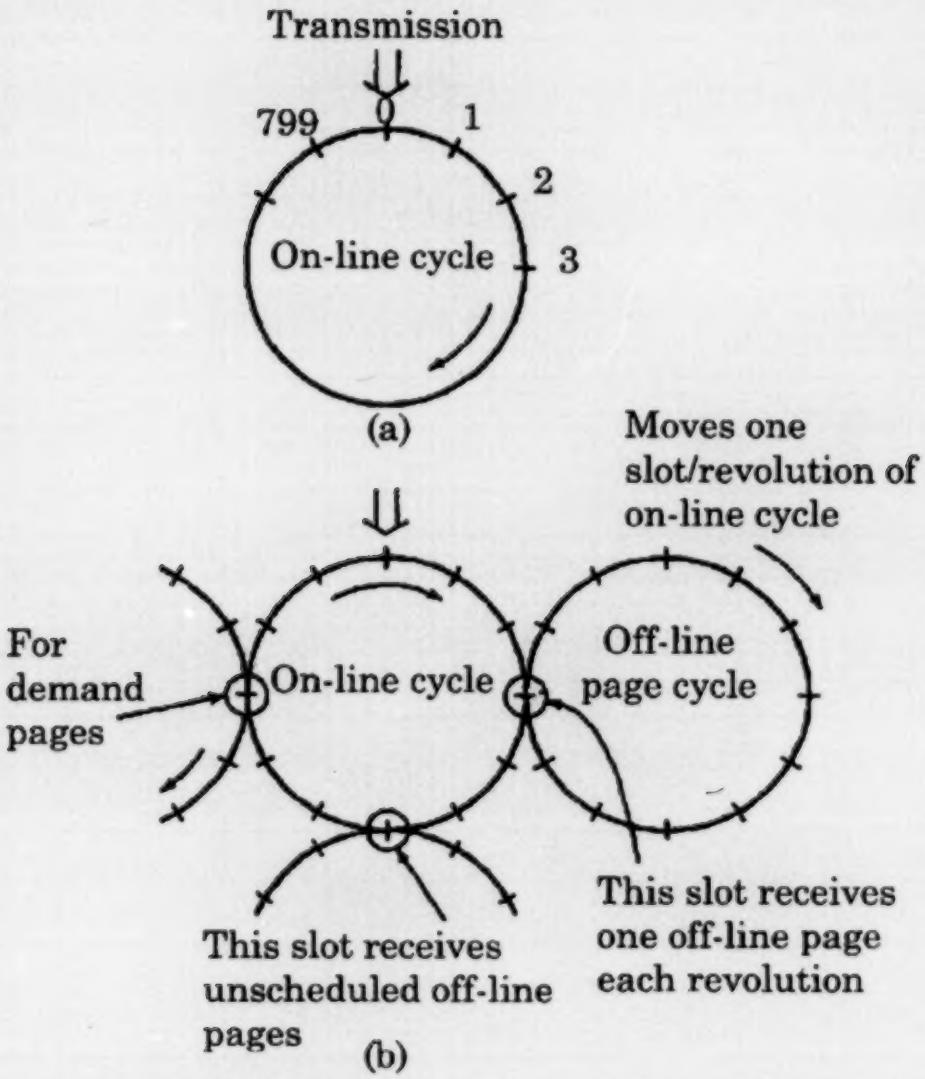

Figure 10.5 Schematic view of teletext databases: (a) simple cyclic online pages; (b) insertion of cyclic off-line, irregular offline and demand pages.

Id. at 176. The text notes that "Figure 10.5(b) is a schematic view of some cycles and 'sub-cycles' (possibly aperiodic) in teletext transmission. Other variations are also feasible." *Id.* Figure 10.5(b) thus shows scheduling of at least two tiers of varying

priorities: pages in the middle circle-the normal broadcast cycle-are transmitted more frequently than the scheduled off-line pages, represented by the circle on the right. Moreover, the reference permits precise counting of the difference in frequency or priority of transmission. The system in the reference transmits only one "slot" of scheduled off-line information per revolution of the on-line page cycle.

These two disclosures-the one on page 175 and the graphic on page 176-both fall within the same chapter subheading "10.4 Databases for Teletext," *id.* at 174, and within the same sub-subheading "Transmission Sequence," *id.* at 175. Indeed, "Transmission Sequence" consists exclusively of text on pages 174 and 175. Thus the author clearly indicated a linkage between the text on page 175 and Figure 10.5 on page 176. These passages refer to the same subject matter. Accordingly, one of ordinary skill in the art would read page 175 and Figure 10.5 on page 176 in concert.

Taken together, pages 175 and 176 clearly and convincingly teach both division of portions of the database into tiers and assignment of scheduled transmission times to portions of the database within those tiers. In other words, those passages disclose the interrelated requirements of claim 16's "scheduling," "transmitting," and "dividing" steps. On this basis, and because Finisar does not dispute that *Videotex Architecture* discloses the other limitations of claim 16, *Videotex Architecture* anticipates claim 16. No reasonable jury could have concluded otherwise. This court reverses the district

court's denial of DirecTV's JMOL motion for invalidity on the basis of anticipation of claim 16.

As for the other claims tried to the jury, claims 17, 22, 24, 26, 39, and 44, DirecTV limited its anticipation arguments in its opening brief to a single table, directing this court to various pages of *Videotex Architecture* as allegedly disclosing each of the remaining asserted claim steps. Appellant's Br. at 50-51. As discussed above with respect to claim 16, an anticipatory reference must disclose not only each limitation of the claim, *see Celeritas,* 150 F.3d at 1361, but also each of those limitations as "arranged as in the claim," *Connell,* 722 F.2d at 1548. DirecTV's table, which merely correlates claim limitations from claims 17, 22, 24, 26, 39, and 44 with corresponding pages from *Videotex Architecture,* may very well disclose at least some of these additional claim limitations. In some cases, the pages DirecTV cites for these disclosures would place them in the same sections of text as the disclosures of the claim 16 limitations discussed above, which could implicitly suggest arrangement of these disclosures as in the claims. Without further analysis of these additional claim limitations, however, this court cannot conclude from DirecTV's table alone that *Videotex Architecture* discloses the limitations of claims 17, 22, 24, 26, 39, and 44, as arranged in those claims. Therefore, in light of our holding that *Videotex Architecture* anticipates claim 16, this court vacates the district court's denial of DirecTV's motion for JMOL with respect to anticipation of claims 17, 22, 24, 26, 39, and 44, and remands for further proceedings consistent with this opinion.

4. Obviousness

"When reviewing a district court's JMOL determination as to obviousness, '[t]his court reviews a jury's conclusions on obviousness, a question of law, without deference, and the underlying findings of fact, whether explicit or implicit within the verdict, for substantial evidence.'" *Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1343 (Fed. Cir. 2007) (quoting *LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc.*, 275 F.3d 1347, 1353 (Fed. Cir. 2001)). These underlying factual findings, in turn, include the familiar *Graham* factors: the scope and content of the prior art, the differences between the prior art and the claims at issue, the level of ordinary skill in the pertinent art, and secondary considerations, otherwise known as objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966).

Because this court now reverses the district court's denial of DirecTV's motion for JMOL that *Videotex Architecture* anticipates claim 16, as a matter of law the elements of claim 16, arranged as in claim 16, are part of that prior art. Claims 17, 22, 24, and 26 all depend from claim 16, and claims 39 and 44 include some claim limitations either identical or very similar to those of claim 16. Thus, in evaluating claims 17, 22, 24, 26, 39, and 44, the district court erroneously read *Videotex Architecture* too narrowly. This court therefore vacates the district court's denial of DirecTV's motion for JMOL of obviousness with respect to claims 17, 22, 24, 26, 39, and 44, and remands for further proceedings consistent with this opinion.

5. Willfulness

In *In re Seagate Technology, LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc), this court held that "proof of willful infringement permitting enhanced damages requires at least a showing of objective recklessness." Moreover this court imposes "no affirmative obligation to obtain opinion of counsel." *Id.*

DirecTV obtained an opinion of counsel, which concluded that DirecTV did not infringe the '505 patent, but took no position on validity. Based on that opinion, DirecTV proceeded to practice its system. The district court faulted DirecTV in part for not obtaining an opinion on validity, weighing its failure to do so in Finisar's favor on the question of willfulness. But the '505 patent would only have been a problem for DirecTV if DirecTV infringed it *and* it was valid. *See Graco, Inc. v. Binks Mfg. Co.*, 60 F.3d 785, 793 (Fed. Cir. 1995) ("There is no requirement that an opinion *must* address validity to negate a finding of willful infringement.") (citation omitted) (emphasis in original). Thus a competent opinion of counsel concluding either that DirecTV did not infringe the '505 patent *or* that it was invalid would provide a sufficient basis for DirecTV to proceed without engaging in objectively reckless behavior with respect to the '505 patent.

Finisar also asserts, as evidence of willfulness, that DirecTV knew of the '505 patent as early as 1997 due to a letter sent to DirecTV's parent company. Finisar contends that DirecTV willfully "stonewalled" in

response for many years. In fact, Finisar also argues that DirecTV did not even obtain its attorney opinion letter until over a year after Finisar sent a notice letter in January 2004. The record, however, shows that Finisar responded successfully to DirecTV's laches defense by acknowledging "no evidence that Finisar reasonably should have known of its claim against DirecTV until December 2003." Under the doctrine of judicial estoppel, *see Biomedical Patent Mgmt. Corp. v. Cal. Dep't of Health Servs.*, 505 F.3d 1328, 1341 (Fed. Cir. 2007), Finisar cannot suggest that DirecTV started "stonewalling" in 1997 when even Finisar did not perceive a problem until nearly 2004. Thus, Finisar has not shown that DirecTV willfully infringed the '505 patent.

B. Finisar's Cross-Appeal

Finisar cross-appeals several of the district court's actions. After vacating the jury's verdict, this court must likewise vacate the district court's grant of a compulsory license. For the same reason, Finisar's objection to the district court's denial of injunctive relief is moot. In contrast, Finisar's cross-appeal with respect to indefiniteness is independent of the vacated jury verdict.

35 U.S.C. § 112, ¶ 2 requires that claims "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." For means-plus-function elements, which are statutorily limited to the "corresponding structure, material, or acts described in the specification and equivalents thereof," 35 U.S.C. § 112, ¶ 6, section 112, ¶ 2 requires that the

specification must permit one of ordinary skill in the art to "know and understand what structure corresponds to the means limitation." *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 949-50 (Fed. Cir. 2007) (internal citation omitted).

Claims 1, 2, 7, 9, 10, 11, and 37, each individually or by dependency, include the limitation "database editing means ... for generating ... and for embedding...." Claim 1 is representative:

> 1. An information transmission system comprising:
>
> a set of one or more computer memory devices on which is stored an information database;
>
> *database editing means*, coupled to said one or more computer memory devices, *for generating* a hierarchically arranged set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, *and for embedding* said indices in said information database ...

'505 patent, col. 17 l.68-col. 18 l.36 (emphases added).

The district court applied the presumption that the patentee's use of "means" renders this step a means-plus-function claim term, falling within the purview of § 112, ¶ 6. The '505 patent discloses very little about the purported structure corresponding to this claim term. For instance, column 6, lines 37-40, of the '505 patent recites that "software 132 (executed by CPU 120) generates a hierarchical set of indices referencing all the data in the information database

112 and embeds those indices in the information database." As the district court correctly noted, this passage provides "nothing more than a restatement of the function, as recited in the claim." *Markman Order*, 416 F.Supp.2d at 519. The specification also describes an alternate embodiment wherein a block of packet ID values are assigned to an off-line information provider, which then organizes them into a database. *See* '505 patent, col.6 ll.48-51. Once again, the district court correctly noted that this passage provides no algorithm or description of structure corresponding to the claimed function. *See Markman Order*, 416 F.Supp.2d at 519.

For computer-implemented means-plus-function claims where the disclosed structure is a computer programmed to implement an algorithm, "the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). Thus the patent must disclose, at least to the satisfaction of one of ordinary skill in the art, enough of an algorithm to provide the necessary structure under § 112, ¶ 6. This court permits a patentee to express that algorithm in any understandable terms including as a mathematical formula, in prose, *see In re Freeman*, 573 F.2d 1237, 1245-46 (CCPA 1978), or as a flow chart, or in any other manner that provides sufficient structure.

The district court correctly determined that the structure recited in the '505 specification does not even meet the minimal disclosure necessary to make the claims definite. Simply reciting "software"

without providing some detail about the means to accomplish the function is not enough. *See Aristocrat Techs. Austl. Pty v. Int'l Game Tech.*, ___ F.3d ___, 2008 U.S. App. LEXIS 6472, at *10 (Fed. Cir. Mar. 28, 2008) ("For a patentee to claim a means for performing a particular function and then to disclose only a general purpose computer as the structure designed to perform that function amounts to pure functional claiming. Because general purpose computers can be programmed to perform very different tasks in very different ways, simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to 'the corresponding structure, material, or acts' that perform the function, as required by section 112 paragraph 6."). This court does not impose a lofty standard in its indefiniteness cases. *See, e.g., Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1214 (Fed. Cir. 2003). But in this case, the claims are already quite vague. Without any corresponding structure, one of skill simply cannot perceive the bounds of the invention. Thus the district court did not err in adjudging claims 1, 2, 7, 9, 10, 11, and 37 invalid for indefiniteness.

III

Because *Videotex Architecture* anticipates claim 16 and because the district court correctly determined that claims 1, 2, 7, 9, 10, 11, and 37 are indefinite, this court remands for further consideration of claims 17, 22, 24, 26, 39, and 44 only. On remand, in light of the proper construction of "downloading into a memory storage device" as well as a proper

understanding of *Videotex Architecture* as disclosing all the elements of claim 16 as arranged in claim 16, the district court will need to reevaluate both infringement and validity for these six claims.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED

COSTS

Each party shall bear its own costs.

APPENDIX B

In The United States District Court
for the Eastern District of Texas
Beaumont Division

Civil Action No. 1:05-CV-264

FINISAR CORP., *Plaintiff*,
v.
THE DIRECTV GROUP, INC., et al., *Defendants*.

Judge Ron Clark

Feb. 17, 2006

MEMORANDUM OPINION AND ORDER CONSTRUING CLAIM TERMS OF UNITED STATES PATENT NO. 5,404,505

CLARK, District Judge.

Plaintiff Finisar Corporation ("Finisar") filed suit against Defendants The DirecTV Group, Inc., DirecTV Holdings, LLC, DirecTV Enterprises, LLC, DirecTV Operations, LLC, DirecTV, Inc., and Hughes Network Systems, Inc. (collectively "DirecTV or Defendants") claiming infringement of United States Patent No. 5,404,505 ("the '505 patent"). The court conducted a *Markman* hearing to assist the court in interpreting the meaning of the claim terms in dispute. Having carefully considered the patent, the prosecution history, the parties' briefs, and the arguments of counsel, the court now makes the

following findings and construes the disputed claim terms as follows.

I. Claim Construction Standard of Review

Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) ("*Markman II*"). "The duty of the trial judge is to determine the meaning of the claims at issue, and to instruct the jury accordingly." *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1555 (Fed. Cir. 1995) (citations omitted).

"'[T]he claims of the patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (citation omitted). "Because the patentee is required to 'define precisely what his invention is,' it is 'unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.'" *Phillips*, 415 F.3d at 1312 (quoting *White v. Dunbar*, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303 (1886)).

The words of a claim are generally given their ordinary and customary meaning. *Phillips*, 415 F.3d at 1312. The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention."[1] *Id.* at 1313. Analyzing

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[1] Based on the patent and the representations of the parties at the hearing, the court finds that in this case such a person would have at least a Bachelor's degree, with a concentration of courses in computer science, involving topics such as computer

"how a person of ordinary skill in the art understands a claim term" is the starting point of a proper claim construction. *Id.*

A "person of ordinary skill in the art is deemed to read the claim term not only in context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Phillips,* 415 F.3d at 1313. Where a claim term has a particular meaning in the field of art, the court must examine those sources available to the public to show what a person skilled in the art would have understood disputed claim language to mean. *Id.* at 1414. Those sources "include 'words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.'" *Id.* (citation omitted).

"[T]he ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips,* 415 F.3d at 1314. In these instances, a general purpose dictionary may be helpful. *Id.*

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operation and programming, software engineering, and data transmission. Depending on the university, this might be designated by a title such as electrical engineering, computer engineering, or computer science. The person would also have a minimum of two to three years experience in the fields of data communications and software engineering.

However, the Court emphasized the importance of the specification. "[T]he specification 'is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). A court is authorized to review extrinsic evidence, such as dictionaries, inventor testimony, and learned treaties. *Phillips*, 415 F.3d at 1317. But their use should be limited to edification purposes. *Id.* at 1319.

The intrinsic evidence, that is, the patent specification, and, if in evidence, the prosecution history, may clarify whether the patentee clearly intended a meaning different from the ordinary meaning, or clearly disavowed the ordinary meaning in favor of some special meaning. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979-80 (Fed. Cir. 1995). Claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated "clear intent" to deviate from the ordinary and accustomed meaning of a claim term by redefining the term in the patent specification. *Johnson Worldwide Assoc., Inc. v. Zebco Corp.*, 175 F.3d 985, 990 (Fed. Cir. 1999).

The "'ordinary meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Phillips*, 415 F.3d at 1321. However, the patentee may deviate from the plain and ordinary meaning by characterizing the invention in the prosecution history using words or expressions of manifest exclusion or restriction, representing a "clear disavowal" of claim scope. *Teleflex, Inc. v.*

Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). It is clear that if the patentee clearly intended to be its own lexicographer, the "inventor's lexicography governs." *Phillips*, 415 F.3d at 1316.

II. Claim Construction - The '505 patent

Dr. Frank Levinson is the inventor of United States Patent No. 5,404,505. The assignee is Finisar Corporation. The '505 patent describes the transfer of information, from an information database, to subscribers, upon request, through satellite transmission. In general, this involves a central supplier station sending regularly scheduled data to its subscribers via satellite. However, a portion of the available bandwidth is reserved for subscriber requested data. Here, although that data is actually broadcast to all subscribers, only those who have requested the data will have access to it (i.e., be able to view the data). There is also the possibility of remote systems (usually local programming) sending data to subscribers.

The first five disputed terms are contained in the beginning of claim 1. This section is set out below with the disputed terms in bold.

> 1. An information transmission system comprising:
>
> a set of one or more computer memory devices on which is stored an **information database**;
>
> **database editing means**, coupled to said one or more computer memory devices, **for**

> **generating a hierarchically arranged set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof**, and **for embedding** said indices in said information database.

"Information database." Used in claims 1, 2, 7, 10, 16, 17, 22, 25, 37, 39, and 44.

For this term, Finisar initially proposed "a collection of information" and gave some examples.[2] DirecTV suggested "[a] collection of non-transient data files that can be searched and retrieved." Their dispute centered on two points:

> 1. whether the data can be in several locations or must be "non-transient;" and
>
> 2. whether the definition must specify that the data can be "searched and retrieved."

Since the claim language alone does not resolve this dispute, the court looks to the specification.

The specification demonstrates that the database is not isolated. "The goal of the present invention is to provide widespread, high speed *access* to a virtual omniscient database...." '505 patent, col. 1, ll. 54-56. (emphasis added); *see also*, col. 5, ll. 12-13. The

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[2] By itself "collection of information" is not very useful. Data which has been deleted from a hard drive is a collection of information, which a forensic expert could retrieve if it has not been overwritten. But it would not be considered part of a database.

specification analogizes the system to "having access" to a large collection of books in a library, even if all books are not instantly available. '505 patent, col. 2, ll. 17-23. All of the information in the database is tagged with indices to form a hierarchical structure to provide subscribers with access to various parts of the database according to different transmission schedules. '505 patent, col. 2, ll. 52-59. Accordingly, the information database is computerized information which can be accessed in some fashion.

There is no need to impose the limitation of "searched and retrieved" which implies a more specific search and retrieval system than the claims and specification describe. Nothing in the claim or specification indicates that the database must be searchable to any particular level of specificity. For example, common legal research systems allow very narrow searches, such as by case name, by judge name, and even by a particular word. In contrast, some of the data in the '505 system can only be referenced in broader terms, such as a search for a movie by title, but not necessarily by words used in a movie or group of movies.

As to the argument that the data in the database be "non-transient," it is important to note that one skilled in the art would know that computerized information is made up of electronic impulses-the classic "ones and zeros" of the binary system. It would also be known that a database could exist on a network of computers and memory storage devices. This is described as a possible embodiment. '505 patent, col. 6, ll. 61-64. Moreover, the use of the phrase "non-transient" will likely not be helpful to a

lay jury. It is not helpful to focus on the time period during which data is being sent from the supplier station to the satellite and then to the subscriber station, as shown in Figure 1 of the patent.

This claim term will be construed as follows:

> **"information database"** means "a collection of computerized information which can be accessed."

"Set of indices for referencing data in said information database." Used in claims 1 and 37.

To one skilled in the art, the terms "index" and "indices" do not always refer to a list, such as one finds at the back of a reference book. In the context of data management, an index can be a single data item. This is how the term is used in this patent. *See* '505 patent, col. 6, ll. 31-36; *see also The IEEE Standard Dictionary: Compilation of IEEE Standard Computer Glossaries: 610* 107 (1990) (definition one).

The parties initially disputed whether an index was used to "identify and/or locate specific items of data" (Finsar's proposal), or merely to "locate specific items of data." (DirecTV's suggestion). At the hearing the following definition was discussed: "pieces of digital information, (each of which contains an identification value, and in many cases other information) used to reference specific items of information in the database." Finisar agreed with this formulation. DirecTV preferred to replace "reference" with "select."

The claim language itself is "referencing data in said information database." The patentee did not provide a special definition of "reference." There is no indication in the patent that "referencing" has any special technical meaning, or is used in any sense other than the widely accepted and commonly understood meaning of "refer to." The specification describe:

> 1. a "set of indices referencing all of the data in the information database ...."'505 patent, col. 6, ll. 38-39;
>
> 2. "a set of assigned indices to reference each distinct portion ..." of the information in the database. '505 patent, col. 13, ll. 23-24; and
>
> 3. "The indices associated with reference data ... may be embedded in various portions of the transmitted data for the purposes of cross-referencing related information."'505 patent, col. 13, ll. 33-36.

It is true that the indices may be used in various ways, such as to select data packets, col. 5, ll. 28-30, or to request data, col. 5, ll. 45-52. While various uses are illustrative, they are not needed for the jury to understand the definition, nor to describe how a person skilled in the art would understand the word. This claim term is therefore defined as follows:

> **"Set of indices for referencing data in said information database"** means "the pieces of digital information, (each of which contains an identification value plus, in many cases, other information) used to refer to

specific items of information within the database."

"Hierarchically arranged." Used in claims 1 and 16.

The specification states that all of the information in the database is "tagged" with indices to form a single hierarchical structure. '505 patent, col. 2, ll. 52-55. The purpose is to allow the subscriber to access various pieces of information in the database, which is sometimes done based upon information already accessed. Figure 9 of the patent shows various levels in a sample hierarchy. The arrows show that indices do not necessarily refer just to information in "lower" levels. Reference may be to a "higher" level. Indices may be "included in the root information (the basic information transmitted most frequently), and also may be embedded in various portions of the transmitted data for the purposes of cross-referencing related information. " '505 patent, col. 13, ll. 32-36. Therefore DirecTV's original suggestion that indices are classified into "successive levels" is not the best way to define this term.

For these reasons, and based upon counsels' representations at the hearing, this term will be defined as follows:

"Hierarchically arranged set of indices" means "the indices are placed in some order based upon logical relationships between or among the indices."

"Database editing means ... for generating ... and for embedding ..." Used in claims 1 and 37.

The parties agree, and the court finds, that this is a means-plus-function claim term, governed by 35 U.S.C. § 112(6). The claim includes the word "means," which invokes a presumption that § 112(6) applies, and it does not recite a structure for performing the claimed function to rebut the presumption. *See Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1248 (Fed. Cir. 2005). Determining the claimed function and the corresponding structure are matters of claim construction, so it is appropriate to deal with these issues at the *Markman* stage. *WMS Gaming Inc., v. Int'l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999).

The claim clearly states, and the parties agree, that the function consists of generating a hierarchically arranged set of indices, and embedding those indices in the information database. Therefore the specification must disclose a structure that generates the indices and embeds them in the database. *See Med. Instrumentation and Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1211 (Fed.Cir.2003).

Since this function is computer implemented, the patent must disclose an algorithm to be performed by the computer to accomplish the recited function. *WMS Gaming Inc.*, 184 F.3d at 1349. This does not mean that the patentee must disclose specific source code for the computer. And, the term "algorithm" is not limited to a formula of mathematical symbols. For example, the steps, formula, or procedures to be performed by the computer might be expressed

textually, or shown in a flow chart. *See Application of Freeman,* 573 F.2d 1237, 1245-46 (Cust. & Pat. App. 1978) and cases cited therein. Under 35 U.S.C. § 112(6), the structure, in this case a computer which executes an algorithm, must be sufficiently disclosed so that one of ordinary skill in the art can determine the limitations on what is claimed. *See Budde v. Harley-Davidson, Inc.,* 250 F.3d 1369, 1381-82 (Fed. Cir. 2001); *see also In re Dossel,* 115 F.3d 942, 946-47 (Fed. Cir. 1997).

The Court in *Dossel* noted that the specification did not "disclose exactly what mathematical algorithm will be used...." *In re Dossel,* 115 F.3d at 946. However, the Court stated that the specification described a device that receives data from two sources and then "computes, from the received data, the current distribution by mathematical operations including a matrix inversion or pseudo inversion, and then outputs the result to a display." *Id.* at 946. The specification also said "'known algorithm' could be used to solve the standard equations which are known in the art." *In re Dossel,* 115 F.3d at 946. While not a precise mathematical formula or flow chart, this description is far more detailed than the bare repetition of the function in the '505 patent.

The '505 patent describes no algorithm, formula, or series of steps performed by the computer to accomplish the function of generating indices and embedding them. Finisar cites to col. 6, ll. 37-40 which states "software 132 (executed by CPU 130) generates a hierarchical set of indices referencing all the data in the information database 112 and embeds those indices in the information database."

This is nothing more than a restatement of the function, as recited in the claim.

Finisar also points to col. 6, ll. 48-51, which describes an alternate embodiment in which a block of packet ID values are assigned to an off-line information provider. That provider organizes the information and embeds the indices in the database. Aside from the fact that this appears to be an attempt to encompass human activity (e.g., decision-making by an individual), it provides no algorithm or description of a structure by which the indices are generated or embedded.

The language in these parts of the specification simply repeat the function described in the claim. Such a description of the structure is so broad as to read on any and every means for performing the recited function. The court finds that this claim term is indefinite because no structure is disclosed for performing the recited function.[3]

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[3] The court is aware that a patent is presumed to be valid. To that end the court considered whether a disclosure of a microprocessor plus software, without any algorithm other than a repetition of the function might have been sufficient in 1995 when the patent was issued. As an analogy, qualified immunity of officers is based upon the law at the time of their action, not the law at the time of trial. The Court examines patents through the eyes of one of ordinary skill in the art at the time the patent is issued, not based upon later advances of science. But even in 1995 it was clear that patentees should have known that in means-plus-function cases, where the structure linked to the recited function was a computer, the patentee had to disclose not only that there was a computer with software, but also disclose the steps, formula, or equation (the "algorithm") the software performed. *See e.g. In Re Alappat*, 33 F.3d 1526, 1543 (Fed.Cir.1994), *Freeman*, 573 F.2d at 1245-47 (1978).

"Dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate." Used in claims 1 and 16.

The specification describes a division of the database into "tiers" or groups for transmission at different times depending on the anticipated, and the requested, demand for the information. '505 patent, col. 13, ll. 63-col. 14, ll. 51. Root information, which provides an index to the information database, is transmitted most frequently. Depending on their priorities, other groups of the information are transmitted at less frequent intervals.

To define the term, DirecTV proposed "Exclusively partitioning those portions of the information database selected for transmission into groups of information each of which are transmitted at a specified rate." Finisar agreed to this formulation with the deletion of "exclusively" and the substitution of "designated" for "specified."

There is no indication that the word "dividing" had a special meaning to one skilled in the art. Nothing in the claim language, nor in the specification, indicates that the same information could not be part of a "first tier," transmitted, say four times an hour, and also part of a "fifth tier," transmitted perhaps only once every twenty-four hours.

DirecTV argued that the ordinary and common meaning of the word "dividing" implies an exclusive

partition. But under an "ordinary and common meaning" approach, if A is the set of all of the information in the system, it could be divided into subsets B, C, and D. Subset B could have some elements in common with C and D, while, at the same time subset C might have no overlap with D. The court concludes that adding the word "exclusively" improperly places a limit on the claim, which is found neither in the claim language nor in the specification.

The parties also differed over whether "designated repetition rate" or "specified repetition rate" should be used to define the claim term "corresponding repetition rate." The claim states that the portions of information in each tier are "transmitted at a corresponding repetition rate." Table 1 at col. 14, ll. 20-33 gives an example of tiers with corresponding rates of transmission. The specification also provides the following: "The particular repetition rates associated with each tier of data and the amount of data allocated to each tier are selectable parameters that will need to be carefully considered in order to maximize the utility of the system for most subscribers." '505 patent, col 14, ll. 37-41.

While "specified" and "designated" mean almost the same thing, they could imply, especially to a lay juror for whom the terms are defined, that there is a required or unchanging repetition rate. "Selectable" as used in the specification, implies some choice, and that change is possible. The disputed term will be defined as follows:

"Dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" means "placing each part of the information database selected for transmission into one or more groups of information, and transmitting each group at a chosen repetition rate."

"Means for receiving and storing video program materials." Used in claim 10.

The parties agree this is a means-plus-function claim term. The word "means," in this claim invokes a presumption that § 112(6) applies, and the claim does not recite structure for performing the claimed function to rebut the presumption. *See Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1248 (Fed. Cir. 2005). The court must first identify the particular claimed function and then identify the corresponding structure in the specification. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d, 1205, 1210 (Fed. Cir. 2003). The patentee must clearly link or associate the structure with the claimed function. *Elekta*, 344 F.3d at 1211.

The parties also agree that the specification discloses as structure: Conventional VHS video recorder (*see* col. 12, ll. 21 "recording"); digital tape recorder (*See* col. 12, ll. 23-24 "-downloaded"); and RAM and/or disk in the subscriber's computer (*see* col. 5, ll. 32 "-downloaded", col. 8, ll. 40-42 "-downloaded). Finisar

would include as structure the buffer and the fast disk storage device.

The specification describes storing received data packets, which could include video program materials, in a ring buffer of the data filter. '505 patent, col. 11, ll. 36-39. This storage is only temporary, for the purpose of checking the packet ID against packet ID data stored in the data filter. If the received packet is to be retained, it is "downloaded" to the subscriber's computer. '505 patent, col. 11, ll. 39-57. The specification also describes use of a fast disk storage device if longer periods of delay are needed before downloading. '505 patent, col. 11, ll. 66-col. 12, ll. 4. In particular, the specification states that larger amounts of data can be "buffered" using a fast disk storage device, as compared to using the ring buffer alone. '505 patent, col. 11, ll. 39-col. 12, ll. 8.

DirecTV argues that the ring buffer and the fast disk storage device are already identified in claim 1. Since claim 10 is dependent on claim 1, DirecTV asserts that the doctrine of claim differentiation precludes their use as structure for the function described in claim 10.

Claim 1 starts with: "An information system comprising." '505 patent, col. 17, ll. 68. The word "comprising" is open ended, meaning that the patentee claims at least what follows, and potentially more. Part of claim 1 is "subscriber stations ... each subscriber station including a data filter...." '505 patent, col. 18, ll. 28-30. The data filter is diagramed in figure 7 and described at col. 11, ll. 34-52. It is

clear from claim 1, and from the specification, that each subscriber station has a data filter, and, in the described embodiment, each data filter has a ring buffer. However, claim 1 does not require a ring buffer or a fast disk storage device. Moreover, claim 10 is differentiated from claim 1 by the limitations set out in claim 9, and by the additional limitations of claim 10 itself.

A means-plus-function claim term encompasses each structure in the specification that performs the recited function. *Micro Chem. Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). Although "buffering," "recording," and "downloading" may refer to specific forms of "storing," each appears to meet the recited function of "storing." Hence, this term will be defined as follow:

> **"means for receiving and storing video program materials"** can be: "1. A ring buffer with or without additional random access memory; 2. Fast disk storage device; 3. Conventional VHS video recorder; 4. Random access memory and/or disk; 5. Digital tape recorder."

"Downloads into a memory storage device those of said received data packets which match said specified set of requested data packets." Used in claims 1, 16, 37, 39, and 44.

This dispute is somewhat unusual in that it does not depend on definitions of technical terms, but rather on grammatical construction. The parties agree that "downloads" means "transfers." They also agree that

what is transferred are data packets, and that the data packets are transferred to a memory device.

The claim states that the data filter is part of the subscriber station, and that the data filter stores filter data. *See* Claim 1, '505 patent, col. 18, ll. 28-30. The filter data specifies the requested data packets. col. 18, ll. 31-33. The specification describes this process in more detail, but gives no indication that the claim language should be given anything but the ordinary and customary meaning. *See* col. 8, ll.37-46, col. 11. ll. 34-57 and Figure 7.

Finisar argues that the data packets to be transferred are "specified" by the filter data. DirecTV argues that the data filter actually transfers the data packets to the memory device. Both are, in a sense, correct.

Claim terms are to be read according to the rules of ordinary English grammar. *In re Hyatt*, 708 F.2d 712, 714 (Fed. Cir. 1983). Accordingly, it is the data filter "that stores filter data ... and that downloads into a memory storage device ..." the data packets. col. 18, ll. 30-35. On the other hand, the claim and specification also make it clear that the data packets to be downloaded are those specified or requested in the filter data. This term will be defined as follows:

> **"Downloads into a memory storage device those of said received data packets which match said specified set of requested data packets"** means "the data filter transfers into a memory storage device the data packets specified in the filter data."

"Transmission bandwidth." Used in two claim terms:

> **11a.** "wherein a portion of the **transmission bandwidth** available to said transmitter is **reserved** for transmitting portions of said information database requested by subscribers." Used in claim 7.
>
> **11d.** "wherein said scheduling step includes **reserving** a portion of **transmission bandwidth** available for said transmitting step for transmitting portions of said information database requested by subscribers." Used in claim 22.

The patent describes a system that divides available bandwidth into tiers and transmits information at different repetition rates depending on the demand for, or anticipated demand for, the information. Part of the bandwidth is reserved "for satisfying requests for access to information not provided with the basic subscriber service." *See* '505 patent Abstract col. 3, ll. 5-10.

The only dispute between the parties is that DirecTV believes the reserved portion of the transmission bandwidth is to be used only to respond to direct requests from subscribers. Finisar argues that the reserved portion of the bandwidth may be used to provide information requested by subscribers on a general, or long term basis, as well as for responses to particular requests.

The language of this claim phrase is clear and straightforward-part of the transmission bandwidth, or transmission capacity, available to the transmitter is reserved, or set aside, for transmitting portions of the information database that have been requested by subscribers. The parties appear to be focused on whether "requests" by a subscriber are "direct" requests or "general" or "long term" requests. The specification indicates that requested data may be included in the basic subscriber service. '505 patent, col. 5, ll. 45-65. The specification also indicates that subscriber-requested data is transmitted "in the portion of the ... bandwidth that is not used for transmitting the regularly scheduled basic programming." '505 patent, col. 4, ll. 55-65. Hence, whether data is "requested" does not appear to depend on whether the request is "direct," "general," or "long term." Rather, requested data is simply data a subscriber has asked to have access to, without regard for whether the request is "direct," "special," "long term," or "general." There is no basis for limiting the use of transmission bandwidth which is "reserved," to direct responses to one time requests for information. Moreover, this claim phrase does not exclude also providing "requested" data using bandwidth that is not reserved. This term will be defined as follows:

> **"Transmission bandwidth" is "reserved"** by setting aside part of the transmission capacity for transmitting portions of the information database that are requested by subscribers.

"Transmission times" as used in two claim terms:

> **11b.** "transmission scheduler **reserves transmission times** for transmitting portions of said information database requested by subscribers." Used in claim 37; and
>
> **11c.** "said transmitting step including transmitting said requested portions of said information database during said **reserved transmission times.**" Used in claim 44.

The parties agree that "reserving transmission times" means setting aside transmission times. Again the question is whether or not time has to be reserved in direct response to a request. This would imply that time was reserved only if a subscriber called in and requested certain information. That may be one embodiment, but, as DirecTV agrees, the "reserved" phrases used in the claims do not explicitly state that any action will be "in response to" subscriber request. DirecTV Brief, p. 29.

As with the earlier phrases, the plain language of the claim phrase simply provides that transmission time is set aside for transmitting data requested by subscribers. Nothing in this language limits the "request" to any particular type, nor does the language prohibit transmission of data during "unreserved" times. As pointed out above, data "requested" by a subscriber may be included in the basic subscriber service. '505 patent, col. 5, ll. 45-65.

This term will be defined as follows:

"Transmission times" are **"reserved"** by setting aside time for transmitting portions of the information database that are requested by subscribers.

"Transmission channels" used in claims 9, 10, 24, and 25.

This disputed term appears in claim 9, which is dependent on claim 1, and in claim 10, which is dependent on claim 9.

> 9. The information transmission system of claim 1, wherein said transmitter transmits said data packets using multiple **transmission channels.**
>
> 10. The information transmission system of claim 9, wherein ... said transmitter transmits data packets containing at least selected portions of said video program materials on at least one of said multiple **transmission channels** and primarily non-video information on at least one other one of said multiplicity of **transmission channels;**

The term also appears in almost identical language in claim 24, which is dependent on claim 16, and in claim 25, which is dependent on claim 24.

One of ordinary skill in the art would understand that, depending on the context, "channel" as used in the field of data transmission could have two meanings. Sometimes "channel" is used to refer to a band of frequencies of a determined width, measured

in megahertz. (MHz). This is the way "channel" is commonly used when referring to common T.V. or radio channels. DirecTV argues that these claims should be limited to this construction.

But multiple "channels" can be carried on a single frequency using a technique called time division multiplexing ("TDM"). In this process, a transmission path (a frequency) is divided into time slots to carry data from several sources at the same time. For example, data from each of three sources is divided into a series of short pieces or "frames" each of which will fit into a time slot. The first piece of data from the first source is transmitted in the first time slot. The first piece of data from the second and third data sources follow in time slots two and three respectively. This sequence is repeated for the second, third and succeeding pieces of data from each source. In effect all three sources of data are transmitted on one path, but in different, time differentiated "channels."

Finasar argues that "transmission channels" as used in these claims, encompasses both kinds of "transmission channel." The various technical dictionaries and references noted in the parties' briefs describe "channel" in both ways. But, contrary to Finisar's arguments, just because a word can be used in two or more ways, does not mean that it was. The issue is: what is meant by "transmission channels" in these particular claims?

This issue illustrates the tension between understanding the meaning of a claim term in the context of the specification, and incorporating

limitations from a disclosed embodiment into the claims. In this case, more than one embodiment is described in the specification. The preferred embodiment is a single channel implementation, and at least one other embodiment is a multiple channel implementation. Several of the dependent claims appear to be directed specifically to a multiple channel implementation. But, although the specification describes at least two embodiments, the terms "channel," and "transmission channel" are consistently used to describe a band of frequencies. In fact, the specification distinguishes between a time division multiplexed "time slot" and a "channel" or "transmission channel."

The specification identifies the one-channel implementation as the "preferred embodiment." '505 patent, col. 4, ll. 65-col. 5, ll. 1-2. The specification indicates that satellite transmission channels can be used for different geographical areas. '505 patent, col. 5, ll. 2-5, and it refers to a "single satellite channel," suggesting a single band of frequencies rather than a single TDM time slot in a band of frequencies. '505 patent, col. 5, ll. 23-26. When "multiple transmission channels" are used, the subscriber stations "change the transmission channel being monitored" ('505 patent, col. 7, ll. 27-36), and the satellite receiver must be told which channel should be selected ('505 patent, col. 12, ll. 29-36). Bandwidth in a single channel transmission system may be subdivided into tiers, with 25% of the available bandwidth being reserved. '505 patent, col. 13, ll. 67-col. 14, ll. 37. The "bandwidth of a channel" ('505 patent, col. 14, ll. 36) may be subdivided by

TDM, suggesting a distinction between channel and TDM time slot.

This suggestion is much more explicit when the specification describes video programming, described as "a classic problem in that it tends to occupy large amounts of bandwidth." '505 patent, col. 16, ll. 46-48. The specification states that "in the preferred embodiment most video programming is transmitted on a separate channel." '505 patent, col. 16, ll. 54-56. This sentence is useless surplusage if "separate channel" refers to TDM. Of course the video programs have to be separated from other data. If only one frequency divided "channel" is being used, there would be no way to transmit the video programs separately, other than with TDM.

The specification then states that on this "separate channel" it would be "possible to use time multiplexing so as to transmit six video programs ... simultaneously." '505 patent, col. 16, ll. 57-60. One of ordinary skill in the art would know that TDM could be used to transmit several programs on one frequency "channel" so there would have been no need to refer to the "separate channel" if it did not mean another frequency.

Claims 10 and 25 are clarified, when read in the context of the portions of the specification discussed above. Both of these claims describe transmitting video programming on "at least one of said multiple transmission channels" and transmitting "primarily non-video information on at least one other one of said multiplicity of transmission channels." '505 patent, col. 19, ll. 66-col. 20, ll.3 and col. 23, ll. 7-12.

What is the purpose of these dependent claims if "transmission channels" refers to TDM?

Hence, although the term "channel" may, in some contexts, apply to a time multiplexed slot on a band of frequencies, the specification of the '505 patent clearly distinguishes between a time multiplexed slot and a band of frequencies, with the latter being referred to as a "channel" or "transmission channel."[4] Therefore this claim term will be defined as follows.

> **"transmission channels"** means "paths for transmitting electronic signals which are differentiated by their frequencies."

III. Conclusion

The jury shall be instructed in accordance with the court's interpretation of the disputed claim terms in the '505 patent.

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[4] The Court need not decide whether the term "channel" would properly apply to a TDM time slot in another context.

APPENDIX C

In The United States District Court
for the Eastern District of Texas
Beaumont Division

Civil Action No. 1:05-CV-264

FINISAR CORP., *Plaintiff*,
v.
THE DIRECTV GROUP, INC., et al., *Defendants*.

Judge Ron Clark

May 2, 2006

ORDER GRANTING DEFENDANTS' MOTION FOR SUMMARY JUDGMENT OF INVALIDITY OF CLAIMS 1, 2, 7, 9, 10, 11, AND 37

CLARK, District Judge.

Before the court is Defendants' Motion for Summary Judgment of Invalidity of Claims 1, 2, 7, 9-11, and 37 [Doc. #68]. The court held claims 1 and 37 indefinite in its *Markman* Order. Defendants now move for summary judgment that these claims and dependent claims 2, 7, 9, 10, and 11 be held invalid. The court grants Defendants' motion.

I. Background and Technology

Plaintiff Finisar Corp. ("Finisar") alleges that Defendants The DirecTV Group, Inc., DirecTV Holdings, LLC, DirecTV Enterprises, LLC, DirecTV

Operations, LLC, DirecTV, Inc., and Hughes Network Systems, Inc. ("DirecTV") infringed on United States Patent No. 5,404,505 ("the '505 patent").

Dr. Frank Levinson is the inventor of United States Patent No. 5,404,505. The assignee is Finisar Corporation. The '505 patent describes the transfer of information, from an information database, to subscribers, upon request, through satellite transmission. In general, this involves a central supplier station sending regularly scheduled data to its subscribers via satellite. However, a portion of the available bandwidth is reserved for subscriber requested data. Here, although that data is actually broadcast to all subscribers, only those who have requested the data will have access to it (i.e., be able to view the data). There is also the possibility of remote systems (usually local programming) sending data to subscribers.

The court conducted a *Markman* hearing and issued a Memorandum and Opinion Construing Claim terms of United States Patent No. 5,404,505 [Doc. #57] ("Mem. Op.") February 17, 2006. The court held Claims 1 and 37 to be indefinite. DirecTV now moves for the court to hold them invalid. Finisar's response suggests that the definiteness issue might be a factual one.

II. Analysis

A. Invalid for Indefiniteness

The law presumes a patent to be valid. It is DirecTV's burden, to prove by clear and convincing evidence, that the patent or one or more of its claims is invalid. 35 U.S.C. § 282; *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003). Whether a means plus function claim of a patent is indefinite for failure to disclose a corresponding structure under 35 U.S.C. § 112(6), is a question of law. *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). The Court has already held that Claims 1 and 37 are indefinite. Mem. Op. p. 8-10. Claims are invalid if they fail to meet the requirements of § 112. *See Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1114 (Fed. Cir. 2002). Because the independent claims 1 and 37 are invalid, any dependent claims are also invalid. Claims 2, 7, 9, 10, and 11 are dependent upon claim 1 and incorporate any limitations of claim 1. *See* 35 U.S.C. § 112. For the reasons set out its prior opinion, Claims 1 and 37 are indefinite. Accordingly Claims 1, 2, 7, 9, 10, 11, and 37 are invalid as a matter of law.

Finisar's response rehashes its original arguments made at the *Markman* hearing and in its supplemental briefs and motion to reconsider. To the extent Finisar is arguing that the issue of definiteness in this case is a factual one for the jury, the court disagrees.

IT IS THEREFORE ORDERED that Defendants' Motion for Summary Judgment of Invalidity of Claims 1, 2, 7, 9-11, and 37 **[Doc. #68]** is **GRANTED**.

APPENDIX D

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2007-1023, 2007-1024

FINISAR CORPORATION,

Plaintiff-Cross Appellant,

v.

The DIRECTV Group, Inc., DIRECTV Holdings LLC, DIRECTV Enterprises LLC, DIRECTV Operations LLC, Hughes Network Systems, Inc., and DIRECTV, Inc.,

Defendants-Appellants.

Appeals from the United States District Court for the Eastern District of Texas in Case No. 1:05-CV-00264, Judge Ron Clark

ORDER

NOTE: This order is nonprecedential

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the Cross-Appellant, and the petition for rehearing, having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on June 5, 2008.

FOR THE COURT,

/s/ Jan Horbaly

Jan Horbaly
Clerk

Dated: 05/29/2008

cc: Gregory A. Castanias
Larry R. Laycock